

Appl. No. 10/038,915  
Reply to Office Action of November 20, 2007

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**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Cancelled)
2. (Previously presented) A transmitter according to claim 10 wherein there are N antennas and a different set of sub-carriers separated by N sub-carriers is assigned to each of the plurality of antennas.
3. (Cancelled)
4. (Currently amended) A transmitter according to claim 10 wherein the header OFDM symbols symbol further contain multiplexed broadcasting sub-carriers for each of the plurality of antennas.
5. (Currently amended) A transmitter according to claim 10, ~~operable to transmit that transmits~~ a preamble having a prefix, followed by two identical OFDM symbols having said header OFDM symbol format.
6. (Original) A transmitter according to claim 5 wherein the prefix is a cyclic extension of the two identical OFDM symbols.
7. (Previously presented) A transmitter according to claim 10 wherein the pilot channel sub-carriers have a BTS specific mapped complex sequence allowing efficient BTS identification.
8. (Currently amended) A transmitter according to ~~any one of claims~~ claim 10 wherein the common synchronization channel is designed for fast and accurate initial acquisition.
9. (Previously presented) A transmitter according to claim 10 wherein the common synchronization channel is used for coarse synchronization and fine synchronization and the pilot channel is used for fine synchronization.

Appl. No. 10/038,915

Reply to Office Action of November 20, 2007

10. (Currently amended) A MIMO-OFDM transmitter operable configured to transmit a header symbol format in which sub-carriers of a header OFDM symbol are divided into a non-contiguous set of sub-carriers for each of a plurality of antennas, with each antenna transmitting the header OFDM symbol only on the respective set of sub-carriers;

wherein the header ~~symbols contain~~ symbol contains a frequency multiplexed dedicated pilot channel on dedicated pilot channel sub-carriers and common synchronization channel on common synchronization channel sub-carriers for each of the plurality of antennas;

wherein the common synchronization channel is used to transmit a complex sequence which is different for each transmit antenna of one transmitter, but which is common for respective transmit antennas of ~~different transmitters~~ each transmitter within a communications network.

11. (Currently amended) A transmitter according to claim 10 operable to transmit that transmits OFDM frames beginning with said header, and having scattered pilots throughout a remainder of the OFDM symbols in each OFDM frame.

12. (Previously presented) A transmitter according to claim 10 wherein during the header, for each of N transmit antennas, dedicated pilot channel sub-carriers are transmitted and common synchronization channel sub-carriers are transmitted and broadcasting channel sub-carriers are transmitted.

13. (Currently amended) A transmitter according to claim 10 wherein the sub-carriers of the header OFDM ~~symbols symbol~~ are organized as a repeating sequence of dedicated pilot channel sub-carriers for each of N transmit antennas~~[[,]]~~ and common synchronization channel ~~sub-carrier sub-carriers~~ for each of N transmit antennas, arranged in a predetermined order.

14. (Currently amended) A transmitter according to claim 4 wherein the sub-carriers of the header OFDM ~~symbols symbol~~ are organized as a repeating sequence of at least one dedicated pilot channel sub-carrier for each of N transmit antennas, at least one common synchronization channel sub-carrier for each of N transmit antennas~~[[,]]~~ and at least one broadcast channel sub-carrier, arranged in a predetermined order.

Appl. No. 10/038,915  
Reply to Office Action of November 20, 2007

15. (Cancelled)

16. (Currently amended) A receiver according to claim [[15]] 17 ~~operable to receive that receives~~ from N transmit antennas with a different set of sub-carriers separated by N sub-carriers assigned to each of the plurality of transmit antennas.

17. (Currently amended) A MIMO-OFDM receiver ~~operable~~ configured to receive a header symbol format in which sub-carriers of a header OFDM symbol are divided into a non-contiguous set of sub-carriers for each of a plurality of transmit antennas, with each antenna transmitting the header OFDM symbol only on the respective set of sub-carriers;

wherein the header ~~symbols contain~~ symbol contains frequency multiplexed dedicated pilot channel sub-carriers and common synchronization channel sub-carriers for each of the plurality of transmit antennas;

wherein the common synchronization channel is used to transmit a complex sequence which is different for each transmit antenna of one transmitter, but which is common for respective transmit antennas of ~~different transmitters~~ each transmitter within a communications network.

18. (Currently amended) A receiver according to claim 17 wherein the header ~~OFDM symbols~~ symbol further ~~contains~~ contains multiplexed broadcasting carriers for each of the plurality of transmit antennas.

19. (Currently amended) A receiver according to claim 17 ~~operable to receive that receives~~ a preamble having a prefix, followed by two identical OFDM symbols having said header OFDM symbol format.

20. (Currently amended) A receiver according to claim 17 wherein the dedicated pilot channel has a BTS specific mapped complex sequence, the receiver being ~~operable to perform~~ performing BTS identification on the basis of the dedicated pilot channel.

21. (Currently amended) A receiver according to claim 19 wherein the dedicated pilot channel ~~have~~ has a BTS specific mapped complex sequence, the receiver being ~~operable to perform~~

Appl. No. 10/038,915  
Reply to Office Action of November 20, 2007

performing BTS identification on the basis of the dedicated pilot channel.

22. (Currently amended) A receiver according to claim 21 wherein the header OFDM symbols symbol contain multiplexed dedicated pilot channel sub-carriers and common synchronization channel sub-carriers for each of the plurality of transmit antennas, the receiver being further ~~operable to perform~~ performing coarse synchronization on the common synchronization channel by looking for a correlation peak between consecutive OFDM symbols which are identical.

23. (Currently amended) A receiver according to claim 22 ~~further operable to perform~~ that performs fine synchronization on the basis of the common synchronization channel sub-carriers and/or the dedicated pilot channel sub-carriers.

Claims 24 - 56 (Cancelled)

57. (Previously presented) A method comprising:

transmitting an OFDM preamble comprising a prefix followed by a plurality of correlated header symbols.

58. (Previously presented) The method of claim 57 wherein the prefix is a cyclic repetition of a portion of one of the header symbols.

59. (Previously presented) The method of claim 57 wherein the plurality of correlated header symbols comprises two header symbols.

60. (Previously presented) The method of claim 57 wherein the plurality of correlated header symbols comprises two identical symbols.

61. (Previously presented) The method of claim 57 wherein the plurality of correlated header symbols comprises two identical symbols, and wherein the prefix is a cyclic repetition of one of the header symbols.